

## **DECISION MAKING AND SELF-EFFICACY IN CHOOSING RENAL REPLACEMENT THERAPY (RRT) OPTION AMONG CHRONIC KIDNEY DISEASE PATIENTS USING INDIVIDUAL COGNITIVE BEHAVIOR THERAPY (CBT)**

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### **ABSTRACT**

The patient diagnosed with Chronic Kidney Disease increasing tremendously. There are 5 stages of CKD progression and patient diagnosed with CKD stages 4 and 5 needs to make decision on choosing the Renal Replacement Therapy (RRT) option as lifelong treatment. The RRT comprises of renal transplant, CAPD (Continuous Ambulatory Peritoneal Dialysis) and Haemodialysis. Decision-making and self-efficacy may play a role in choosing these options. Cognitive Behavior Therapy (CBT), as an intervention tool to assist in the decision-making process. The aim is to study the decision making among Chronic Kidney Disease (CKD) patients in choosing Renal Replacement Therapy (RRT) option. This study comprises mixed mode study of quantitative and qualitative study. The sampling method that will be applied is stratified sampling, whereby the patients are selected based on selected criteria. It is a prospective study that includes stages 4-5 CKD patients during Nephrology Clinic review. Demographic, clinical, and number of visit data will be evaluated. A total number of 500 CKD patients will be screened and 200 (100 male and 100 female) CKD patients will be administrated with Shared Decision Making-Q-9 (SDM-Q-9) and Chronic Disease Self-Efficacy scales (CDSES) questionnaire. A total number of 5 patients will be chosen for CBT intervention therapy. The quantitative data of the findings will be analyzed using SPSS through p-value and correlation, where else for qualitative finding the 5 serial individual counseling sessions will be conducted and the session will be recorded and analyzed. The significance of the study is to assist CKD patients in decision making process, reduce delayed decision making leads to hospital administration, increase communication skills between health care worker and CKD patient, develop mutual respect and understanding between CKD patient, CKD patient can identify level of self-efficacy towards the illness, reduce number of regular visit and timing to nephrology clinic, reduce costing of medical treatment, improve patients economy level and increases family unity and support and assisting health care provider in designing effective treatment for the patients.

**Key words:** Chronic Kidney disease (CKD), Stage 4 and 5 CKD, Renal Replacement Therapy (RRT), Continuous Ambulatory Peritoneal Dialysis (CAPD), Haemodialysis, Decision making, Self-efficacy, Cognitive Behavioural Therapy (CBT), Health Care Provider (HCP).

### **INTRODUCTION**

The prevalence of chronic kidney disease (CKD) patient had been reported increasingly among Malaysian population. There are many factors that lead to chronic kidney disease (CKD), one of it is prolonged diabetes and hypertension. These patients progressively lose their kidney function until dialysis is required. In fact, these patients may have higher mortality risk if its not treated. Apart from that they may also experience a life changing impact on quality of life and functional status. There are five stages of chronic kidney disease, and the last stage is termed as End Stage Renal Disease (ESRD) (Haddad et.al, 2019). During initial stages of 1 to 3, patient kidney function will eventually deteriorate, but when it enters to stage 4 and 5, the kidneys total function gone and patient requires renal replacement therapy (RRT), as a choice of long-term treatment. Renal Replacement Therapy can be defined as choices of treatment for End Stage Renal Disease (ESRD), which comprises of Kidney transplantation, PD (Peritoneal Dialysis), and Hemodialysis (Smyth, 2012). At these stage patients will need to choose any three-treatment option as their long-term therapy treatment.

Kidney transplantation or renal transplantation is the organ transplant of a kidney into a patient with end-stage renal disease (ESRD), where else peritoneal dialysis (PD) refers to a dialysis technique that uses the patient's own body tissues inside the abdominal cavity as a filter and hemodialysis refers to dialysis of purifying through patient's blood (Haddad et.al, 2019). Choosing the choices that represent may impact patient cognitive process as well. The process of cognitive process, which includes decision-making, is very essential in choosing the best option among the patient. The transition from Chronic Kidney Disease (CKD) to renal replacement therapy (RRT) is a stressful event for the patients (Bezerra CIL, et.al, 2018). The RRT decision-making process is very challenging as the nephrologists need to provide education and support in helping patients with dialysis modality, which

reflects the patient's personal values and lifestyle (Bezerra CIL, et.al, 2018). In fact there are no studies on treatment decision-making in ESKD conducted (Boateng, 2018). The factors that can influence patient's decision-making are impact of peers on decision making by patients and carers, the problematic timing of information presented, and the desire by patients to maintain the status quo (Morton et.al, 2010). Apart from that four main factors (personal, financial, healthcare system, and support network) were identified to influence CKD (Chronic Kidney Disease) patient decision-making as well (Boateng, 2018).

Self-efficacy was term and introduced by Albert bandura whereby it's the one's belief in their own ability to successfully perform an activity and achieve the expected outcomes (Ebrahimi et.al, 2018). It is also considered an important concept in the assessment and improvement of chronic conditions (self-management, quality of life, behavioral modification, hopefulness, lifestyle modification, physical and mental health, and disease presentation (Mohamadinejad et.al, 2015). This is because there are factors influencing self-efficacy of chronic patients, such as age, low education level, financial distress, single status, caregiver burnout, co-morbidities, increasing body mass index (BMI), illness perception, and disease severity (Shakya, 2018). In another study self-efficacy factors are influence by level of knowledge and how patient manage them self (Milo, 2017).

The decision-making involves cognitive process and patient's action or behavior out of what they have decided and self-efficacy involve cognitive as well internal processes. These both dimensions may eventually will have better ways if an intervention strategy applied in the decision-making process of the patients. In fact the Decision-making processes have been shown to have a link in the self-efficacy of an individual (Bahari, 2019). Cognitive behavioral therapy is one of the prominent therapies, which describe the component of cognitive, and behavior. Through the method and procedure applied in an individual counseling process these CBT is essential in the decision making of RRT. CBT therapy is very effective as its produce positive outcome to patients, improve quality of life and coping skills, treating problematic behavior and improve the illness disorder (Hamisi, 2017; Alexander, 2018; Alandy-dy, 2019; Gentile, 2019). Delayed decision-making causes lack of congruence between patient and clinicians, deteriorate quality of care patient's treatment and effect the management of doctors (Nichols, 2018; Diamse, 2018; Musculus et.al, 2018)

## **PROBLEM STATEMENT**

In Malaysia, a population-based study in 2011 reported that 9.1% of Malaysians were found to have Chronic Kidney Disease (Ismail et.al, 2019). Where else if we look at the global prevalence, it is reported that the percentage is 11% and 13% (Hill et.al, 2019). The breakdown of the stages OF CKD contributes stage 1, 4.16%; stage 2, 2.0%; stage 3, 2.26%; stage 4, 0.24%; and stage 5, 0.36% (Hill et.al, 2019). When looking at the statistic RRT options, Hemodialysis (HD) with the prevalence of 1059 patients per million population (ppm) in 2016 followed by peritoneal dialysis (PD) (127 patients ppm) and renal transplantation (RT) (59 patients ppm) (Ismail et.al, 2019). The requirement on the needs in choosing the RRT option very challenging based on the number. When zooming more on the prevalence's the incidence of Chronic Kidney Disease (CKD) patients requiring follow up in a regional hospital from year 2017 (968) to 2018 (1126). The data indicated that patient who is currently undergoing follow up for Chronic Kidney Disease treatment would eventually end up in End Stage Renal Disease. This number eventually increase and impact the health care setting and a well guided patient needs to establish a good treatment option. Choosing RRT option might be a dilemma for both patients and nephrologists since different options of RRT are available for CKD patients (Bezerra CIL, et.al, 2018). Assisting patient in deciding the best option is very challenging for nephrologists and healthcare workers. Understanding and evaluating patient decision-making process is important as it can assist the nephrologists to plan further treatment and assist patient with the selected treatment option. When these patients delay or undecided to choose the treatment option will eventually affect their quality of life and in sequence in the health care system it will eventually increases the mortality rate. In current evidence it is suggested that early RRT option reduced mortality and better renal recovery (Zarbock, 2016). The dilemma that may impact this group will be the factors that lead to a better decision-making. Furthermore, the patient's own belief system in choosing the treatment option may eventually contribute better outcome of quality of the treatment as well. Assisting and guiding patients in choosing the best options is very essential by applying appropriate intervention such as Cognitive Behavior Therapy (CBT) using individual counseling approach.

## **OBJECTIVE**

The general objective of this study is to study the decision-making among Chronic Kidney Disease (CKD) patients in choosing Renal Replacement Therapy (RRT). The specific Objectives of the quantitative study are to explore factors contributes to decision making of CKD patients in choosing RRT options and to identify the association between self-efficacy with decision-making process. Where else the specific Objectives of the qualitative study are to investigate using individual counseling with Cognitive Behavioral Therapy (CBT) in decision-making process among CKD patients in choosing RRT options. The research questions and hypotheses in this research are:

- What are the factors contributes to decision making of CKD patients in choosing RRT options?
- How self-efficacy influences decision making of patient in choosing RRT options
- How Cognitive Behavior Therapy (CBT) effects the decision-making process among CKD patients in choosing RRT options?

Hypothesis 1 : There is relationship between self-efficacy and decision making

Hypothesis 2: There is factors contributes to decision making of RRT options?

Hypothesis 3 : There is a different decision making between age and gender

Hypothesis 4 : There is a different decision making between gender and education level

Hypothesis 5 : There is a different self-efficacy between age and gender

Hypothesis 6 : There is a different self-efficacy between gender and education level

## SIGNIFICANCE OF THE STUDY

This research focuses on the decision-making, self-efficacy and CBT intervention for Chronic Kidney Disease (CKD) patient. Their decision making in choosing the best option for RRT may eventually give a great impact in preparing patient to undergo lifelong renal replacement treatment. The delay decision-making may impact in hospitalization due to various complications. Through identifying the factors of decision-making and self-efficacy can assist the health care workers in assisting patient to improve quality of life in choosing the best option for renal replacement therapy. Through applying individual counseling with Cognitive Behavioral Therapy (CBT) intervention applied in clinical setting among this population will give good outcome for Nephrologists to communicate and to have better mutual respect and understanding in managing CKD patient in the aspect of decision making choosing the best renal replacement therapy option. In the aspect of patient significance to this study, CKD patient can identify their level of self-efficacy towards their illness and may impact in motivational level hence may impact their decision making in choosing the renal replacement therapy option. In Nephrology services clinic, the benefit will be the number of patients who visited due to lack of delay timing in the decision making, may reduce the frequency of following up in the clinic hence reduces overload of patient.

## LITERATURE REVIEW

Chronic kidney disease (CKD) is a disease where the kidneys are damaged and can't filter blood the way it should be. The risk factors for developing kidney disease are diabetes, high blood pressure, heart disease, and a family history of kidney failure (Fadem, 2018). Chronic kidney disease (CKD) can be categorized under 5 stages of kidney damage, where by its from mild damage in Stage 1 to complete kidney damage failure in Stage 5. The stages of kidney refer to how well the kidney filter waste and extra fluid from the blood. The measure how the kidney filter waste from the blood, the eGFR (Estimated Glomerular Filtration Rate) is a blood test done to measure it (AKF, 2019). A person with Stage 5 CKD has end stage renal disease (ESRD) with a GFR of 15 ml/min or less (Fadem, 2018). This will be the final stage where the kidney is completely fail to work and at this level preparing for kidney transplant or dialysis are required (AKF, 2019). Apparently patient need to decide and proceed with the renal replacement therapy option. Renal replacement therapy (RRT) is a therapy that replaces the normal blood-filtering function of the kidneys. Basically, RRT used to improve the balance through removing waste, unwanted solutes and water through a semi permeable membrane (Cooper, 2017). Renal replacement therapy includes kidney transplant, haemodialysis and peritoneal dialysis which are various ways of filtration of blood (Fadem, 2018).

Decision making is a process where an individual are required to select one option from several alternatives that are available. In general decision making involve the individual determination of the risks and benefit that related with the options, knowledge of the risk, ability to retrieve information from memory and also the ability to hold it in the mind while compares with other options (Xu, Abshire, & Han, 2015). In a study indicated that medical decision making is influence by the patient's diagnosis, cognitive functioning, and functional abilities and skills, with sensitivity to the person's race, ethnicity and past experiences (Gross, 2016). Decision making can be collaborative process between two individual or group of members. Shared decision making (SDM) is a term described as collaborative process involving, at a minimum, the patient and the clinician finding the optimal treatment option for a patient (Subramaniam et.al, 2018). When making a decision, it is actually differ from individual where by different individual may have different factor that can affect their decision making. There are many factors that can be discussed as well in contributing decision making of an individual. In more general population, in a study conducted on behavioral finance, it is documented that factors that leads to investors decision making are psychological factors (cognitive and emotional) and also the demographic factors (Al-Alawi, 2017). In discussing among chronic patient, the factors that influence their decision making are, knowledge, values, experiences, awareness, personality, socio demographic, psychological factor, communication and internal belief. Decision making is an important task that an individual need to act as it will guides in solving a problem as well. In the past study there are few studies where discuss the impact of decision making and also the delayed decision making. In a study done in clinical setting explained that the crucial decision making is a pathway to the trade-offs among treatment strategies, if it is delayed the impact may causes lack of congruence among clinicians about the desired options, and also the documented workflow and communication barriers that may prevent clinicians and patients from a good decision making (Nichols, 2018).

In order to understand indebt on decision-making style, patient's self-efficacy need to be evaluated and how it impacts patient's decision-making process. Self-efficacy is the belief we have in our own abilities, specifically our ability to meet the challenges ahead of us and complete a task successfully (Akhtar, 2008). There are many researches been done on the study of self-efficacy. In a spiritual wellbeing of an individual, self-efficacy plays a mediator in their mindfulness for the purpose of well-being (Ruiz, 2018). In order to understand this concept of self-efficacy, factors that contribute to it, is very essential to figure out as it assists in understanding the individual self-efficacy level. In more general, understanding experiences do not plays a vital role influencing the self-efficacy level. In special education teacher it is found that there was no correlation between experience and self-efficacy and professional development of those teachers (Sciarretto, 2019). In comparing self-efficacy in health setting, patient who diagnose with chronic illness, may eventually affect the self-efficacy during illness process. Self-efficacy among CKD can support the behavior and eventually can assist patient in making a good decision-making (Sorait, 2018). In a study among 200 haemodialysis population patient correlation study was done to know the relationship between social support, self-efficacy and health promoting behavior. Self-efficacy was significantly associated with social support, another word the social support an important element in contributing self-efficacy of chronic patient (Kiajamali et. al, 2017).

CKD patient may struggle in their decision-making based on their anxiety to choose the treatment. One of the therapies that can be applied is CBT, where it can identify patient's factors and how to deal with it. According to Cognitive Behavioral Therapy (CBT) theory, anxious individuals have a difficult time making decisions because they have more trouble accepting life's uncertainties (Standing, 2017).

## RESEARCH METHOD

This is applied research type and its quantitative and qualitative study mode method. This research is mixed mode method for various reasons; firstly, qualitative method is practical in health setting as it can assess the decision-making and self-efficacy among chronic kidney disease patient. Besides that, the questionnaire that will be used considered proven of reliability and validity test where it will eventually give sense of involvement and partnership. In qualitative method, using structured individual counseling session it can generally be applied as intervention method for chronic kidney disease patient. In this method there are few steps that will be used to conduct individual counseling session. The overall study will be conducted in Nephrology clinic in a regional city.

The stratified sampling selection process is the ideal technique to determine the generalizability of the survey finding. For the sample of this study, the selected sample was chronic kidney disease patient. The sample size will be taken based on the Krejcie & Morgan table (Krejcie & Morgan, 1970). The total number of sample size needed based on the formula, will be total of 277 samples where by the overall population size is 1000 size. Hence in this study a total of 500 patients will be selected to join from proportion of 1000 sample of patient. So in order to follow this step, a total number of 500 CKD patients will be screened based on certain criteria. Inclusion criteria will be age limit (18-75) years as to ensure the informed consent at legal age, patients who are diagnosed with stage 4 and 5 of chronic kidney disease and patients following under Nephrology follow up more than three times in a year. The exclusion criteria will be patient with serious intellectual impairment, age less than 18 and more than 75 years old, patient defaulted clinic follow up within 3 times in a year and patients who are diagnosed with stage 1, 2 and 3 CKD. The selection of only 200 patients (100 Male, 100 Female) will be answering questionnaire and for the data analysis. In this research the tools that will be applied are using two types of questionnaire, Shared Decision Making (SDM-Q-9) and Self-Efficacy Scale on Chronic Diseases (SESCD). The answered questionnaire will be analyzed using SPSS version 26 software and the method for analysis will multivariate analysis comprises of factor analysis, multiple regression and discriminant analysis.

The overall 200 patients will be selected for data analysis and from that a number of 5 samples will be selected to undergo an individual counseling session based on the scoring of the self-efficacy questionnaire the patients answered. Based on the sample only 5 samples were chosen for individual counseling as this research is mixed mode research and limitation would be in conducting the counseling, which requires more time to analyze. This counseling session will focus more on using CBT approach as mode of intervention in decision making of the patient selecting the RRT option. The selected patient will undergo a series of minimum 5 sessions of individual counseling based on patient preferences. The 5 patients will have a total of 25 counseling session. The findings of the counseling will be recorded and analyzes to developed a team that will assist in the decision-making process of the patient choosing the RRT options.

## INSTRUMENT

### Survey Tool Qualitative

#### Shared Decision Making (SDM-Q-9) and Self-Efficacy Scale on Chronic Diseases (SESCD)

In the measuring the decision making among CKD patient, the nine-item Shared Decision-Making questionnaire (SDM-Q-9) will be used in this research. It is considered one of the most frequently applied instruments for assessing patient's involvement in the medical decision making. It was developed in the year 2009 and it has developed through translation into 20 languages (Rencz et. Al, 2019). Each closed questions represent by statement featuring various aspect of SDM, rated by 6 likert scale scaling. The psychometric testing, shows that 93% completion rate for all items and the difficulty ranged from 3.52 to 4.34 on scale from 0 to 5 and the scale internal consistency shows ( $\alpha=.88$ ) hence this version was tested in U.S and confirmed the high internal consistency level (Doherr et. al, 2017).

In assessing self-efficacy level among CKD patients, the Self-Efficacy Scale on Chronic Diseases (SESCD) questionnaire will be used. It was obtained by adapting the original form of the Chronic Diseases Self-Efficacy Scale (CDSES) to Turkish. The scale developed by Lorig et al in America in 1996 was composed of 6 questions and ten sub dimensions. The SEMCD scale were examined in data with aggregated from 6 studies which includes 2,866 patients with various chronic illnesses, the internal consistency was high throughout the 6 studies research (Cronbach's  $\alpha$  0.87-0.91), and moderate correlations obtained with SEMCD scores (Riechm et. al, 2016). In another study the Cronbach's  $\alpha$  value of the scale was 0.95 and the total score correlation between the items were 0.55-0.96 (Ceyhan & Unsal, 2017).

### Survey Tool Qualitative

In qualitative measurement, in this research the approach that will be applied are using individual counseling session using CBT (Cognitive Behavioral Therapy). In conducting the individual counseling session, the counseling process steps are applied during the session and it is based on the guidance from Lembaga Kaunselor Malaysia code of ethic book.

## PILOT STUDY

In order to evaluate the reliability and validity of the questionnaire before given to the patient, a pilot study was conducted. Generally, there are two types of questionnaire were distributed to the patient. A total number of 20 patients were selected to answer the question based on the designed criteria. This patient will be excluded from the initial study data collection as to avoid any biases in data collection and interpretation. The initial pilot study was conducted in Nephrology Clinic on July 22<sup>nd</sup>, 2020 and

23rd, 2020 whereby total number of 10 patients were selected on July 22<sup>nd</sup> 2020 and the remaining 10 patients on the 23rd July, 2020. Generally, the two types of question are in English and Malay language. The entire patient successfully answered all the questions and the data was analyzed using SPSS software. The descriptive characteristics of the sample study are computed and both questionnaires are tested based on the distribution of each item, items difficulty, factor analysis and the internal consistency.

The SDM-Q-9 questionnaire, total number of 9 items questionnaire shows the internal consistency 0.953 hence it is more than 0.9 ranges, where else the SESCD questionnaire internal reliability shows that each items question shows alpha value of 0.885 for 6 number of items questions. This shows the internal reliability is overall good hence in this study it still can be applied for further analysis using larger sample population. KMO value for sampling adequacy for SDM-Q-9 questionnaire shows value of 0.632, where else for SESCD questionnaire the value is 0.615 hence it shows the sampling adequate to be applied in this population.

Prior to commencement of this study, approvals will be obtained from the CRC (Clinical Research Centre Ministry of Health, the Head of Department permission and institutional approval will be obtained prior to this study.

## DISCUSSION AND RECOMMENDATIONS

Patient decision making in selecting option for Renal Replacement Therapy (RRT) is very important in nephrology field. This is because. There are many factors that can influence the decision making among these CKD patients, which includes knowledge, values, experiences, awareness, personality, socio demographic, psychological factor, communication and internal belief. Patient's own belief and abilities which known as self-efficacy may contribute to the decision making of choosing RRT option. There are factors that contribute to the self-efficacy of an individual which consist of social support, self-efficacy and health promoting behavior. In order to have better decision making, intervention such as Cognitive Behaviour Therapy may be applied in assisting the process. This therapy is widely applied in various medical field as well, patient who are having anxiety can be applied as the intervention strategy. There are certain aspect of decision making in RRT option among CKD patients need some attention where by future research on using psychoeducation approach will enhance the decision-making process. Apart from that applying group counseling through applying integrated counseling approach may give impact on the decision making of RRT option.

## CONCLUSION

The overall article discusses about the decision-making and self-efficacy among Chronic Kidney Disease patient in choosing Renal Replacement Therapy (RRT) using Individual Cognitive Behaviour Therapy (CBT). Limitation in this study will be the sample of the patients are taken and randomly selected and it can affect the number sample selected. Apart from that the long waiting time to see nephrologists 'may lead to not cooperating in answering the questionnaire and also the health condition of the patients is unpredictable as it may impact the data collection as well. Apart from that due to current Covid-19 pandemic the number of patients visiting to the Nephrology clinic limited hence it may affect the sampling size.

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